

## REMARKS

Reconsideration of this application, as amended, is respectfully requested.

The claims have been amended to delete the references to a deviation in angle being greater than  $\arctan(1/AR)$ , wherein AR is the ratio of depth to diameter of the one or more contact openings. Hence, the objections to the drawings under 37 CFR 1.83(a) are now moot and no replacement drawings are needed.

The provisional rejection of claims 1, 2, 4-6, 10, 13-19, 21-23, 27 and 30-38 under the judicially created doctrine of obviousness-type double patenting in light of co-pending Application No. US 2004/0021076 is noted. A terminal disclaimer will be filed should the co-pending claims issue and/or the present claims be deemed allowable subject to such action being taken.

In the Office Action, all of the previously presented claims were rejected, in various fashions, under 35 U.S.C. 103(a) as being unpatentable over Yamada et al. (U.S. Patent No. 6,768,324 B1). Responsive to these rejections, the claims have been amended. In particular, the independent claims (claims 1, 18, 35, and 37, and new independent claims 3 and 20) now recite steps of analyzing a process used to create contact openings or a work station adapted to permit analyses of a process used to create the contact openings. For at least the reasons discussed below, these amendments patentably distinguish the present claims over Yamada.

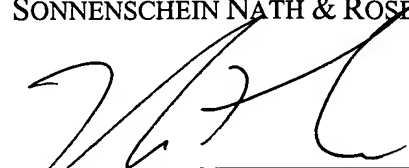
The present application is a Continuation-in-Part of US Application 10/434,977. In allowing the '977 application, Examiner Vanore specifically addressed the Yamada reference now cited in the Office Action. Examiner Vanore commented that, "The Yamada et al. patent is directed towards observing a specimen as is, not as part of analyzing the process used to fabricate the sample." See Notice of Allowability, dated May 3, 2005 in U.S.

Application No. 10/434,977 at p. 2, a copy of which is enclosed herewith. For this same reasoning then, the present claims (which now include steps or apparatus directed to analyzing a process used to fabricate the sample) must be patentable over Yamada.

If there are any additional fees due in connection with this communication, please charge our deposit account no. 19-3140.

Respectfully submitted,

SONNENSCHN NATH & ROSENTHAL LLP



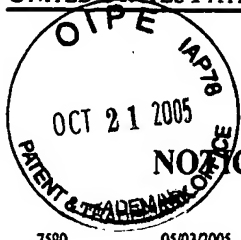
Dated: October 18, 2005

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## UNITED STATES PATENT AND TRADEMARK OFFICE



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05/03/2005

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## NOTICE OF ALLOWANCE AND FEE(S) DUE

EXAMINER

VANORE, DAVID A

ART UNIT

PAPER NUMBER

2881

DATE MAILED: 05/03/2005

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/434,977	05/09/2003	Alexander Kadyshevitch	PDC/OR/6967	9084

TITLE OF INVENTION: CONTACT OPENING METROLOGY

APPLN. TYPE	SMALL ENTITY	ISSUE FEE	PUBLICATION FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1400	\$300	\$1700	08/03/2005

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. **PROSECUTION ON THE MERITS IS CLOSED.** THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN **THREE MONTHS** FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. **THIS STATUTORY PERIOD CANNOT BE EXTENDED.** SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE REFLECTS A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE APPLIED IN THIS APPLICATION. THE PTOL-85B (OR AN EQUIVALENT) MUST BE RETURNED WITHIN THIS PERIOD EVEN IF NO FEE IS DUE OR THE APPLICATION WILL BE REGARDED AS ABANDONED.

## HOW TO REPLY TO THIS NOTICE:

## I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL should be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). Even if the fee(s) have already been paid, Part B - Fee(s) Transmittal should be completed and returned. If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

**IMPORTANT REMINDER:** Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

### **DETAILED ACTION**

Applicant's election without traverse of Claims 1-40, 77-95, and 172-190 in the reply filed on January 7, 2005 is acknowledged.

#### ***Allowable Subject Matter***

Claims 1-40, 77-95, and 172-190 are allowed.

The following is an examiner's statement of reasons for allowance:

Regarding independent claim 1 and dependent claims 2-21, the most relevant prior art to the claimed invention is USPN 6,768,324 B1 to Yamada et al. Claim 1 distinguishes over Yamada et al. The main reason for allowance of claim 1 is that Yamada et al. is directed solely to the observation of a semiconductor sample having features thereon. There is no teaching or suggestion in Yamada et al. to incorporate the observation of current transmitted through a sample and electrons emitted by the sample to create an etch indicator signal and analyzing said etch indicator signal to assess a characteristic of an etch process. The Yamada et al. patent is directed towards observing a specimen as is, not as part of analyzing the process used to fabricate the sample. Claims 2-21 depend on claim 1 and are therefore allowable by virtue of their dependency.

Regarding independent claim 22 and dependent claims 23-40, the same rationale applied to claim 1 is similarly applicable to claim 22. Claim 22 further differs from claim 1 in that the sample of claim 22 comprises first and second arrays of test opening having different respective first and second spacings between the openings in the arrays. During search, the examiner has uncovered USPN 5,903,011 to Hatanaka

**Notice of Allowability**



Application No.

10/434,977

Examiner

David A. Vanore

Applicant(s)

KADYSHEVITCH ET AL.

Art Unit

2881

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the election filed January 7, 2005.
2. ☒ The allowed claim(s) is/are 1-40, 77-95 and 172-190.
3. ☒ The drawings filed on 09 May 2003 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All b) ☐ Some\* c) ☐ None of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
  - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
    - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
  - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date \_\_\_\_\_
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

and USPN 5,637,186 to Liu et al. These references teach monitor patterns, comprising contact holes in the case of Liu et al. and contact trenches in the case of Hatanaka, having differing dimensions and spacing on multilayer semiconductor substrates. However, taken with the prior art, they do not in combination make up for the deficient teaching in Yamada et al. pointed out above. Claim 22 is therefore allowable over the prior art, claims 23-40 being allowable by virtue of their dependency.

Regarding independent claim 77 and dependent claims 78-90, the rationale for claim 1 is applicable to claims 77-90.

Regarding independent claim 91 and dependent claims 92-95, the rationale for claim 1 is applicable.

Regarding claims 172-190, independent claims 172 and 186 recite devices for evaluating a sample produced by an etch process and comprise control means which evaluates an etch indicator signal to assess a characteristic of an etch process producing the sample. This limitation is common to claims 172 and 186 and distinguishes in conjunction with that which is also recited in the claims over the prior art as explained above with respect to claims 1 and 22.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

**Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David A. Vanore whose telephone number is (571) 272-2483. The examiner can normally be reached on M-F 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John R. Lee can be reached on (571) 272-2477. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

dav

  
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